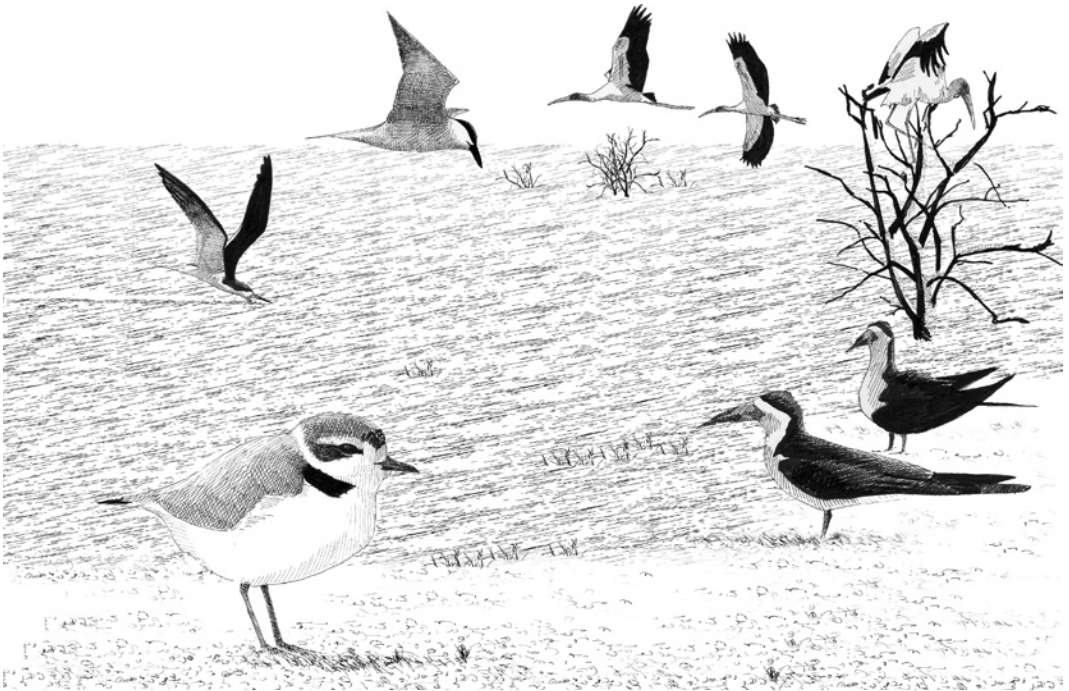


II

SPECIES ACCOUNTS



Andy Birch

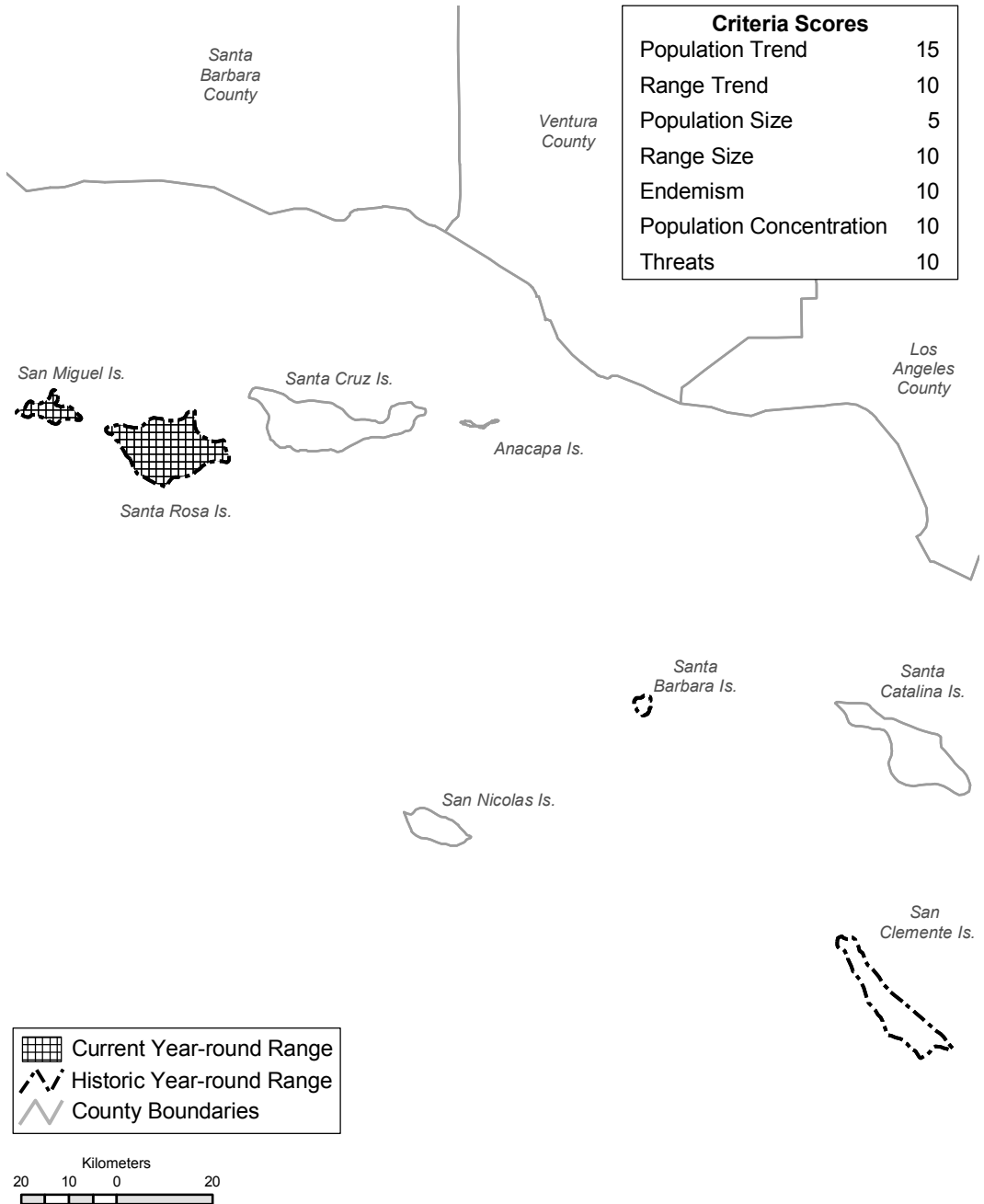
PDF of Channel Island Song Sparrow account from:

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CHANNEL ISLAND SONG SPARROW

(*Melospiza melodia graminea*)

PAUL W. COLLINS



Current and historic (ca. 1944) year-round range of the Channel Island Song Sparrow, a California endemic; numbers have declined greatly. Restricted to San Miguel and Santa Rosa islands, and formerly to Santa Barbara (up to the 1960s) and San Clemente islands (up to 1973). Song Sparrows on Santa Cruz Island are intermediate between adjacent mainland *heermanni* and island *graminea*. Song Sparrows of one or more mainland subspecies occur as occasional migrants to the Channel Islands.

SPECIAL CONCERN PRIORITY

Currently considered a Bird Species of Special Concern (year round), priority 1. None of the originally described endemic subspecies of the Song Sparrow on the Channel Islands were included on prior special concern lists (Remsen 1978, CDFG 1992).

BREEDING BIRD SURVEY STATISTICS FOR CALIFORNIA

Data inadequate for trend assessment (Sauer et al. 2005).

GENERAL RANGE AND ABUNDANCE

The Song Sparrow (*Melospiza melodia*) is one of the most widespread species of songbird in North America, ranging from southern Alaska across central and southern Canada south through the United States into northern (locally to central) Mexico and Baja California; a large part of northern range occupied in summer only, much of mid-central and southern portion in winter only (AOU 1998). In California, the species is resident in much of the state except for the higher mountains and most of the southeastern deserts away from the Salton Sink and Colorado River valley (Grinnell and Miller 1944, Small 1994). Of the 24 subspecies currently recognized, 9 occur in California (Patten 2001, Arcese et al. 2002).

The Channel Island Song Sparrow (*M. m. graminea*) is resident on two (formerly four) of the California Channel Islands and on Islas Los Coronados off northern Baja California (Patten 2001, Collins and Jones in press).

Until Patten's (2001) revision, which merged all of the island subspecies into a single endemic (*M. m. graminea*), Song Sparrows on the Channel Islands were assigned to one of four endemic subspecies: *graminea* on Santa Barbara, *micronyx* on San Miguel, *clementae* on Santa Rosa and San Clemente, and *coronatorum* on Islas Los Coronados (Grinnell and Miller 1944, AOU 1957). Because Patten (2001) considered Song Sparrows on Santa Cruz Island to be intermediate between adjacent mainland *heermanni* and island *graminea*, this population is not discussed further.

SEASONAL STATUS IN CALIFORNIA

The Channel Island Song Sparrow is a sedentary, year-round resident; the breeding season extends from late February until mid-July (Collins and

Jones in press). Although some authorities consider Song Sparrows breeding residents on Anacapa Island (Grinnell and Miller 1944, AOU 1957, Patten 2001), a review of all available records indicate that the species is only a casual spring and fall transient to this island (Collins and Jones in press). Song Sparrows from the mainland are occasionally reported during the fall and winter on other islands that currently do not support resident breeding populations.

HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA

Historically, Song Sparrows were resident on four of California's Channel Islands: San Miguel, Santa Rosa, Santa Barbara, and San Clemente. Howell (1917) and Grinnell and Miller (1944) found them numerous and widespread but of variable relative abundance among the islands. Early ornithologists variously described them as "less common," "common," "fairly common," and "abundant" on the islands. These observations, however, were all made well after feral herbivores had begun to alter the shrubby habitats occupied by Song Sparrows. The historic status of *M. m. graminea* varied among islands as reviewed here.

San Miguel Island. Most early observers reported Song Sparrows as "common" on San Miguel (Willett 1933, Howell 1917, Grinnell and Miller 1944), whereas Sumner and Bond (1939) described them as "abundant" on the main island and present and breeding on adjacent Prince Island. Despite widespread vegetation stripping from intensive grazing by feral European Mouflon Sheep (*Ovis aries*) during the 19th and early 20th centuries, Song Sparrows apparently were still common on San Miguel through the 1940s.

Santa Rosa Island. In July 1892, C. P. Streater (unpubl. field notes, USNM) described Song Sparrows on Santa Rosa as "common in the wooded canyons about water"; other early observers considered them "common" or "fairly common" (Howell 1917; H. H. Sheldon unpubl. field notes, SBMNH; Grinnell and Miller 1944).

Santa Barbara Island. Grinnell (1897) reported the Song Sparrow as the "most abundant bird" on Santa Barbara; other early observers also termed it "abundant" (Howell 1917, Sumner and Bond 1939, Grinnell and Miller 1944). These estimates suggest that at least until the early 1940s Song Sparrow abundance on Santa Barbara Island had not been reduced substantially by the decline of shrubby vegetation from farming activities, sheep grazing, and feral European Rabbit (*Oryctolagus*

cuniculus) foraging that occurred from 1915 to 1938 (Sumner 1958, Stewart and Smail 1974).

San Clemente Island. Various early observers described Song Sparrows as “numerous,” “abundant,” or “common” on San Clemente (Grinnell 1897, Linton 1908, Howell 1917, Grinnell and Miller 1944). Shrubby habitats inhabited by Song Sparrows on San Clemente were adversely affected by feral herbivore grazing, which began there in the early 19th century (USDN 2001). Goats (*Capra hircus*) apparently were kept under control by hunting and by commercial sheep ranching from 1860 until 1934, when ranching operations were stopped (Andrew 1998 in USDN 2001), which may account for Song Sparrows still being numerous on the island into the early 1940s. Subsequently, however, goat numbers began to increase greatly, as did the impact of goats on the island’s vegetation and endemic avifauna (USDN 2001).

RECENT RANGE AND ABUNDANCE IN CALIFORNIA

Breeding populations of Song Sparrows on Santa Barbara and San Clemente islands have been extirpated as a result of vegetation stripping by feral herbivores and increased rates of predation from feral cats (*Felis catus*) and various native avian and mammalian predators (see map; Stewart and Smail 1974). By contrast, Song Sparrows are apparently more widely spread today on San Miguel and Santa Rosa islands than historically, in response to improvement of scrub habitats following removal of feral herbivores from these islands.

San Miguel Island. Huber (1968) reported that Song Sparrows were “abundant” across the island. In 1973, H. L. Jones considered them “very common” away from the barren western one-third of the island (Collins and Jones in press). Island-wide estimates were 980–1200 birds in 1978 and 2000 in 1986 (Collins 1979, Sogge et al. 1991). The last feral herbivores were removed from San Miguel in the late 1970s. In the mid-1980s, Sogge and van Riper (1988) recorded densities of 7.1 to 10.0 birds per ha on their study plots. Line-transect monitoring surveys conducted by the National Park Service between 1993 and 1998 recorded an average density of 1.70 birds per km² (range = 0.11–4.07; Fancy 2000). The discrepancy between these two density estimates reflects differences in the areas sampled: the higher estimate is based on surveying only prime Song Sparrow breeding habitat, the lower on surveying a variety of habitats crossed by survey transects.

Today, Song Sparrows are considered widespread and “common” on this island (Kern et al. 1993).

Santa Rosa Island. Miller (1951) reported Song Sparrows as “common” on Santa Rosa in 1950, and P. W. Collins (unpubl. field notes, SBMNH) described them as “common to abundant” in 1975 and 1976. Feral pigs (*Sus scrofa*) were eradicated from Santa Rosa Island in 1993 (Lombardo and Faulkner 2002) and domestic cattle (*Bos taurus*) were removed in 1998 (NPS 1998). From 1993 to 1998, variable-circular-plot surveys recorded an average of 0.68 birds per station (range = 0.38–1.14, SE 0.15) and detected these sparrows at an average of 38.9% (range = 7.7%–66.7%) of all stations (Fancy 2000).

Santa Barbara Island. Despite the destruction of much of their scrub and *Coreopsis* nesting habitat from clearing for farming and from browsing by introduced European Rabbits, Song Sparrows were still present in reasonably high numbers at least through the spring of 1958 (Sumner 1958). A fire in 1959, however, destroyed most of the sparrows’ remaining habitat, and they disappeared from the island sometime during the 1960s (Philbrick 1972). Intensive surveys in the 1970s (Hunt and Hunt 1974, Smail and Henderson 1974, J. Diamond unpubl. data, H. L. Jones unpubl. data) and six years of intensive monitoring surveys in the 1990s (Fancy 2000, Coonan et al. 2001) failed to locate any resident Song Sparrows. The Santa Barbara Song Sparrow (*M. m. graminea*, sensu AOU 1957) was officially listed as extinct in 1983 (USFWS 1983).

San Clemente Island. The last documented sightings of the Channel Island Song Sparrow on San Clemente were of two birds seen on 24–27 May 1968 (J. Diamond pers. obs.) and single birds (possible migrants) at Wilson Cove on 9 April 1972 and 14 April 1973 (Leatherwood and Coulombe 1972, H. L. Jones pers. obs.). Intensive surveys for this species in May 1974 failed to locate any resident birds (Stewart and Clow 1974). Hence, the Channel Island Song Sparrow appears to have been extirpated from San Clemente since the early 1970s.

ECOLOGICAL REQUIREMENTS

The basic requirements of the Channel Island Song Sparrow are very similar to those described for mainland Song Sparrows: moderately dense scrubby vegetation for nesting, escape cover, and foraging; a source of standing or running water or, in dry scrub habitats, constant moisture from fog or dew; adequate light; and exposed ground or

leaf litter for foraging (Marshall 1948, Sogge and van Riper 1988, Shuford 1993). On the islands, Song Sparrows are most numerous in areas of dense shrubs and thickets of Giant Coreopsis (*Coreopsis gigantea*), but they also inhabit grasslands with scattered shrubs, *Artemisia-Opuntia*-grass associations, and, at least historically on Santa Barbara Island, dense grasslands (Townsend 1890, Grinnell 1897, Grinnell and Miller 1944, Miller 1951, Smail and Henderson 1974, Sogge and van Riper 1988).

On San Miguel Island, Song Sparrows defend areas of significantly higher vegetation and more shrubs, and often locate their nests in shrubbery of densely vegetated gullies (Sogge and van Riper 1988, Kern et al. 1993). Channel Island Song Sparrows nest in shrubs such as Goldenbush (*Isocoma menzies*), Silver Lupine (*Lupinus albifrons*), Coyote Brush (*Baccharis pilularis*), prickly-pear (*Opuntia* spp.), California Sagebrush (*Artemisia californica*), Arroyo Willow (*Salix lasiolepis*), Giant Coreopsis, and California Box Thorn (*Lycium californicum*; Grinnell 1897, Linton 1908, Howell 1917, Collins 1979, Sogge and van Riper 1988). Factors believed to reduce nesting success of Song Sparrows on San Miguel are strong northwesterly winds that produce wind chills as low as -14° C during the nesting season; predation by Island Foxes (*Urocyon littoralis*), which destroys up to 23% of nestlings (Sogge and van Riper 1988); cool overcast conditions prevailing during the nesting period; and high levels of insolation of nests on clear and sunny days (Kern et al. 1993). To compensate, Song Sparrows on San Miguel build heavier nests than those of other races of Song Sparrows and locate their nests on the leeward side of shrubs, away from strong prevailing northwest winds, and deep within the nest plant, where concealed from predators by a protective canopy (Kern et al. 1993). Channel Island Song Sparrow nests averaged 0.37 ± 0.26 m (range = 0.00–1.22 m) above the ground, which is less than half that reported for mainland nests (Kern et al. 1993, Arcese et al. 2002). Song Sparrows at San Miguel construct compact, open nest bowls of twigs, herbs, parts of shrubs, weed stems, grass stems, and dry leaves, which they line with fine grasses or leave unlined (Kern et al. 1993). In most years, Channel Island Song Sparrows are double-brooded (Collins 1979, Sogge and van Riper 1988).

Song Sparrows forage usually on the ground but occasionally in low vegetation, where they pick a variety of vegetable (plant seeds) and animal

(insects) matter from the bare ground or leaf litter under the cover of dense thickets (Marshall 1948, Shuford 1993). Anecdotal observations from San Miguel Island suggest that the diet of Channel Island Song Sparrows is similar to that of Song Sparrows on the mainland (Collins 1979). The year-round diet of Song Sparrows in California is composed of 21% insects and 79% plant seeds ($n = 321$ stomachs; Beal 1910). Insects, such as beetles, caterpillars, bees, ants and wasps, true bugs, and flies, are an important component of the diet in the spring, when animal prey make up 71% of overall diet versus 3% in September (Beal 1910, Shuford 1993).

THREATS

Historically, the principal factors that threatened Channel Island Song Sparrows were habitat loss, fragmentation, and degradation from overgrazing by feral goats and sheep and rooting by feral pigs, increased levels of nest predation from native and non-native predators, and increased fire frequency and intensity. Altering brush and woodland habitats, including their understories, by grazing, rooting, and wildfires has increased the susceptibility of ground or near-ground nesters, such as Song Sparrows, to predation from both native (e.g., Island Fox, American Kestrel [*Falco sparverius*], Common Raven [*Corvus corax*], and Loggerhead Shrike [*Lanius ludovicianus*]) and non-native (feral cat and Black Rat [*Rattus rattus*]) nest predators. As herbivores and feral pigs are removed from the Channel Islands, vegetation is expected to increase in vigor and growth (Coblentz 1977, Wehtje 1991, Klinger et al. 1994, Laughrin et al. 1994), which over the long term will lead to the development of dense stands of the scrub habitat favored by these sparrows. On islands where Song Sparrows breed or have bred, their known predators remain on San Clemente (feral cats and Black Rats) and San Miguel (only rats). Controlling or eliminating fire or light-to-moderate grazing or browsing will over time lead to the development of dense stands of scrub and woodland. As vegetative cover increases, fire frequency and intensity are also expected to increase, especially where military activities are intense (e.g., onshore bombardment activities at San Clemente). Large, "hot" fires are expected to reduce suitable Song Sparrow habitat temporarily, until vegetation recovers. Cowbird parasitism is not expected to affect these sparrows since cowbirds are not known to breed on any of the Channel Islands (Collins and Jones in press).

MANAGEMENT AND RESEARCH RECOMMENDATIONS

- Implement a reintroduction program to reestablish viable breeding populations on Santa Barbara and San Clemente islands following further vegetative recovery and predator control.
- Complete feral animal eradication programs and support the implementation of ecological restoration plans proposed by the Navy for San Clemente Island (USDN 2001) and by the National Park Service for San Miguel, Santa Rosa, Santa Cruz, and Santa Barbara islands (NPS 1998, 1999, 2002).
- Conduct studies using mitochondrial and single-locus, microsatellite DNA analyses to elucidate the population genetic structure, phylogeny, and taxonomic relationships of *M. melodia graminea* and to identify the source population to use as the stock for reintroducing Channel Island Song Sparrows to Santa Barbara and San Clemente islands.

MONITORING NEEDS

Although Song Sparrows are generally easily detected on Breeding Bird Surveys and Christmas Bird Counts, neither are currently being conducted on islands where Channel Island Song Sparrows now breed, and neither method enables monitoring population trends with respect to habitat changes. Song Sparrows are, however, well sampled by off-road point counts and constant-effort mist-netting (Ralph et al. 1993, Nur et al. 2000).

Annual monitoring should include off-road variable circular plots (stratified by habitat type), to assess population changes relative to habitat changes, and constant-effort mist-netting, to estimate annual adult survival and breeding productivity (e.g., MAPS program; DeSante et al. 1993).

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